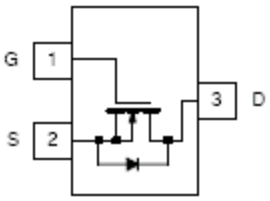
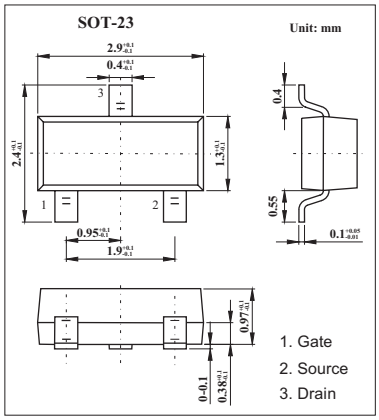
N-Channel 30-V (D-S) MOSFET

KI2306DS

■ Features

- TrenchFET Power MOSFET
- 100% Rg Tested





■ Absolute Maximum Ratings Ta = 25℃

Parameter	Symbol	Rating	Unit
Drain-source voltage	V_{DS}	30	V
Gate-source voltage	V_{GS}	±20	V
Continuous drain current (T_J = 150℃) *1,2 T_A=25℃ T_A=70℃	I_D	3.5 2.8	A
Pulsed drain current	I_{DM}	16	A
Continuous source current (diode conduction) *1,2	I_S	1.25	A
Maximum Power dissipation *1,2 T_A=25℃ T_A=70℃	P_D	1.25 0.8	W
Operating junction and storage temperature range	T_j,T_{stg}	-55 to +150	℃
Maximum Junction to Ambienta t≤5 sec	R_{thJA}	100	℃/W
Steady State		130	

*1 Surface Mounted on FR4 Board.

*2 t≤5 sec

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■ Electrical Characteristics Ta = 25℃

Parameter	Symbol	Testconditons	Min	Typ	Max	Unit
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} = 0 V, I_D = 250 μA	30			V
Gate threshold voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250 μA	1			
Gate-body leakage	I_{GSS}	V_{DS} = 0 V, V_{GS} = ± 20 V			±100	nA
Zero gate voltage drain current	I_{DSS}	V_{DS} = 30V, V_{GS} = 0 V			0.5	μA
		V_{DS} =30V, V_{GS} = 0 V, T_J = 55 ℃			10	
On-state drain current	$I_{D(on)}$	V_{DS} ⩾ 4.5 V, V_{GS} = 10 V	6			A
		V_{DS} ⩾ 4.5 V, V_{GS} = 4.5 V	4			
Drain-source on-state resistance	$r_{DS(on)}$	V_{GS} = 10 V, I_D = 3.5 A		0.046	0.057	Ω
		V_{GS} =4.5 V, I_D =2.8 A		0.070	0.094	
Forward transconductance	g_{fs}	V_{DS} =4.5 V, I_D = 3.5 A		6.9		S
Diode forward voltage	V_{SD}	I_S = 1.25 A, V_{GS} = 0 V		0.8	1.2	V
gate charge *	Q_g	V_{DS} = 15V ,V_{GS} =5V , I_D= 3.5 A		4.2	7	nC
Total gate charge *	Q_{gt}	V_{DS} = 15V ,V_{GS} = 10 V , I_D= 3.5 A		8.5	15	nC
Gate-source charge *	Q_{gs}			1.9		
Gate-drain charge *	Q_{gd}			1.35		
Gate Resistance	Rg		0.5		2.4	Ω
Input capacitance *	C_{iss}	V_{DS} = 15V ,V_{GS} = 0 , f = 1 MHz		555		pF
Output capacitance *	C_{oss}			120		
Reverse transfer capacitance *	C_{rss}			60		
Turn-on time	$t_{d(on)}$	V_{DD} = 15V , R_L = 15Ω , I_D = 1A , V_{GEN} =-10V , R_G = 6Ω		9	20	ns
	t_r			7.5	18	
Turn-off time	$t_{d(off)}$			17	35	
	t_f			5.2	12	

* Pulse test: PW ⩽ 300 μs duty cycle ⩽ 2%.

■ Marking

Marking	A6